

WHAT IS CLAIMED IS:

1. A droplet ejecting head in which a plurality of ejectors for ejecting a droplet are two-dimensionally arranged and the droplet is ejected while the droplet ejecting head is moved in a main scanning direction relative to a recording medium, characterized in that:

the ejectors are arranged such that, when dots of the droplets ejected on the recording medium are viewed in a main scanning-orthogonal direction, which is orthogonal to the main scanning direction, the sizes of dot diameters are changed at random.

2. A droplet ejecting head in which a plurality of ejectors for ejecting a droplet are two-dimensionally arranged and the droplet is ejected while the droplet ejecting head is moved in a main scanning direction relative to a recording medium, characterized in that:

the ejectors are arranged such that, when the ejectors are viewed in order in the main scanning-orthogonal direction, which is orthogonal to the main scanning direction, positions of the ejectors in the main scanning direction alternate in an offsetting manner.

3. A droplet ejecting head according to claim 2, wherein a

spatial frequency of offsetting alternation of the position of the ejector in the main scanning direction is in a range of 2.5  $\mu\text{m}$  to 254  $\mu\text{m}$  (inclusive of both 2.5  $\mu\text{m}$  and 254  $\mu\text{m}$ ).

4. A droplet ejecting head according to claim 2, wherein the offsetting alternation of the position of the ejector in the main scanning direction occurs at each ejector.

5. A droplet ejecting head according to claim 2, wherein the ejectors are divided, in the main scanning direction, into  $k$  ( $k$  is a natural number more than one) ejector blocks, each ejector block includes at least one ejector unit disposed in the main scanning-orthogonal direction, each ejector unit includes  $n$  ( $n$  is a natural number more than one) ejectors adjacent in the main scanning direction, the ejectors of each ejector unit are offset from each other in the main scanning-orthogonal direction, by a desired pitch  $p \times k$ .

6. A droplet ejecting head according to claim 5, wherein there is a relationship  $M_L/k = n$  between a total number of columns  $M_L$  of the ejectors,  $k$  and  $n$ .

7. A droplet ejecting head according to claim 5, wherein one ejector unit of one ejector block is offset, by  $p$ , in the main scanning-orthogonal direction, relative to a main scanning

direction-adjacent ejector unit of another ejector block which is adjacent to the one ejector block in the main scanning direction.

8. A droplet ejecting head according to claim 7, wherein a configuration of the ejector units of one ejector block and a configuration of the ejector units of another ejector block which is adjacent to the one ejector block are symmetrical, with respect to a centerline between the ejector blocks.

9. A droplet ejecting head according to claim 5, wherein the  $n$  is an odd number.

10. A droplet ejecting head which ejects a droplet while being moved in a main scanning direction relative to a recording medium, including:

a plurality of ejectors which are two-dimensionally arranged, to eject a droplet,

wherein the plurality of ejectors are arranged such that, when the ejectors are viewed in order in a main scanning-orthogonal direction, which is orthogonal to the main scanning direction, two ejectors adjacent in the main scanning direction is prevented from being adjacent in the main scanning-orthogonal direction, and a spatial frequency of offsetting alternation of the positions of the ejectors in the main

scanning direction is in a range of 2.5  $\mu\text{m}$  to 254  $\mu\text{m}$  (inclusive of both 2.5  $\mu\text{m}$  and 254  $\mu\text{m}$ ).

11. A droplet ejecting head according to claim 10, wherein the ejectors are divided, in the main scanning direction, into  $k$  ( $k$  is a natural number more than one) ejector blocks, each ejector block includes at least one ejector unit disposed in the main scanning-orthogonal direction, each ejector unit includes  $n$  ( $n$  is a natural number more than one) ejectors adjacent in the main scanning direction, the ejectors of each ejector unit are offset from each other in the main scanning-orthogonal direction, by a desired pitch  $p \times k$ .

12. A droplet ejecting head according to claim 11, wherein there is a relationship  $M_L/k = n$  between a total number of columns  $M_L$  of the ejectors,  $k$  and  $n$ .

13. A droplet ejecting head according to claim 11, wherein, in the  $k$  ejector units adjacent in the main scanning direction, of the  $k$  ejector blocks, one ejector unit of one ejector block is offset, by  $p$ , in the main scanning-orthogonal direction, relative to a main scanning direction-adjacent ejector unit of another ejector block which is adjacent to the one ejector block in the main scanning direction.

14. A droplet ejecting head according to claim 13, wherein a configuration of the ejector units of one ejector block and a configuration of the ejector units of another ejector block which is adjacent to the one ejector block are symmetrical, with respect to a centerline between the ejector blocks.

15. A droplet ejecting head according to claim 10, wherein the  $n$  is an odd number.

16. A droplet ejecting head according to claim 10, wherein the ejectors are arranged such that, when dots of the droplets ejected on the recording medium are viewed in a main scanning-orthogonal direction, the sizes of dot diameters are changed at random.

17. A droplet ejecting head according to claim 10, wherein the ejectors are arranged such that, when the dots of the droplets ejected on the recording medium are viewed in the main scanning-orthogonal direction, density of the dot is fluctuated up and down at each dot.

18. A droplet ejecting head according to claim 11, wherein the ejectors are arranged such that, when the dots of the droplets ejected on the recording medium are viewed in the main scanning-orthogonal direction, density of the dot is fluctuated

up and down at each dot and a cycle of the fluctuation is  $p \times k$ .

19. A droplet ejecting head characterized by having a droplet ejecting head described in claim 2.

20. A droplet ejecting head characterized by having a droplet ejecting head described in claim 10.